

RECEIVED

SEP 30 2003

TECH CENTER 1600/2900



1600

## RAW SEQUENCE LISTING

DATE: 09/25/2003

PATENT APPLICATION: US/09/809,060

TIME: 13:22:45

Input Set : A:\Sequence Listing 1900\_0260001.txt

Output Set: N:\CRF4\09252003\I809060.raw

4 <110> APPLICANT: Wild, Carl T.  
 6 Allaway, Graham P.  
 9 <120> TITLE OF INVENTION: A Method for Generating Immunogens that Elicit  
 10 Neutralizing Antibodies against Fusion-Active  
 11 Regions of HIV Envelope Proteins  
 14 <130> FILE REFERENCE: 1900.0260001  
 C--> 17 <140> CURRENT APPLICATION NUMBER: US/09/809,060  
 19 <141> CURRENT FILING DATE: 2001-03-16  
 22 <150> PRIOR APPLICATION NUMBER: US 60/189,981  
 24 <151> PRIOR FILING DATE: 2000-03-17  
 27 <160> NUMBER OF SEQ ID NOS: 87  
 30 <170> SOFTWARE: PatentIn version 3.0  
 33 <210> SEQ ID NO: 1  
 35 <211> LENGTH: 36  
 37 <212> TYPE: PRT  
 39 <213> ORGANISM: Human immunodeficiency virus type 1  
 43 <400> SEQUENCE: 1  
 45 Tyr Thr Ser Leu Ile His Ser Leu Ile Glu Ser Gln Asn Gln Gln  
 46 1 5 10 15  
 48 Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu  
 49 20 25 30  
 51 Trp Asn Trp Phe  
 52 35  
 54 <210> SEQ ID NO: 2  
 56 <211> LENGTH: 36  
 58 <212> TYPE: PRT  
 60 <213> ORGANISM: Human immunodeficiency virus type 1  
 64 <400> SEQUENCE: 2  
 66 Tyr Thr Asn Thr Ile Tyr Thr Leu Leu Glu Glu Ser Gln Asn Gln Gln  
 67 1 5 10 15  
 69 Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu  
 70 20 25 30  
 72 Trp Asn Trp Phe  
 73 35  
 75 <210> SEQ ID NO: 3  
 77 <211> LENGTH: 36  
 79 <212> TYPE: PRT  
 81 <213> ORGANISM: Human immunodeficiency virus type 1  
 85 <400> SEQUENCE: 3  
 87 Tyr Thr Gly Ile Ile Tyr Asn Leu Leu Glu Glu Ser Gln Asn Gln Gln  
 88 1 5 10 15  
 90 Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Asn Leu  
 91 20 25 30

ENTERED

P.6

## RAW SEQUENCE LISTING

DATE: 09/25/2003

PATENT APPLICATION: US/09/809,060

TIME: 13:22:45

Input Set : A:\Sequence Listing 1900\_0260001.txt

Output Set: N:\CRF4\09252003\I809060.raw

```

93 Trp Asn Trp Phe
94      35
96 <210> SEQ ID NO: 4
98 <211> LENGTH: 36
100 <212> TYPE: PRT
102 <213> ORGANISM: Human immunodeficiency virus type 1
106 <400> SEQUENCE: 4
108 Tyr Thr Ser Leu Ile Tyr Ser Leu Leu Glu Lys Ser Gln Ile Gln Gln
109 1      5      10      15
111 Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu
112      20      25      30
114 Trp Asn Trp Phe
115      35
117 <210> SEQ ID NO: 5
119 <211> LENGTH: 36
121 <212> TYPE: PRT
123 <213> ORGANISM: Human immunodeficiency virus type 2
127 <400> SEQUENCE: 5
129 Leu Glu Ala Asn Ile Ser Gln Ser Leu Glu Gln Ala Gln Ile Gln Gln
130 1      5      10      15
132 Glu Lys Asn Met Tyr Glu Leu Gln Lys Leu Asn Ser Trp Asp Val Phe
133      20      25      30
135 Thr Asn Trp Leu
136      35
138 <210> SEQ ID NO: 6
140 <211> LENGTH: 38
142 <212> TYPE: PRT
144 <213> ORGANISM: Human immunodeficiency virus type 1
148 <400> SEQUENCE: 6
150 Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu
151 1      5      10      15
153 Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val Glu
154      20      25      30
156 Arg Tyr Leu Lys Asp Gln
157      35
159 <210> SEQ ID NO: 7
161 <211> LENGTH: 38
163 <212> TYPE: PRT
165 <213> ORGANISM: Human immunodeficiency virus type 1
169 <400> SEQUENCE: 7
171 Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu
172 1      5      10      15
174 Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val Glu
175      20      25      30
177 Arg Tyr Leu Lys Asp Gln
178      35
180 <210> SEQ ID NO: 8
182 <211> LENGTH: 48
184 <212> TYPE: PRT

```

## RAW SEQUENCE LISTING

DATE: 09/25/2003

PATENT APPLICATION: US/09/809,060

TIME: 13:22:45

Input Set : A:\Sequence Listing 1900\_0260001.txt

Output Set: N:\CRF4\09252003\I809060.raw

```

186 <213> ORGANISM: Human immunodeficiency virus type 1
190 <400> SEQUENCE: 8
192 Tyr Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln
193 1 5 10 15
195 Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu
196 20 25 30
198 Trp Asn Trp Phe Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Pro Gly
199 35 40 45
201 <210> SEQ ID NO: 9
203 <211> LENGTH: 18
205 <212> TYPE: PRT
207 <213> ORGANISM: Human immunodeficiency virus type 1
211 <400> SEQUENCE: 9
213 Tyr Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln
214 1 5 10 15
216 Glu Lys
219 <210> SEQ ID NO: 10
221 <211> LENGTH: 18
223 <212> TYPE: PRT
225 <213> ORGANISM: Human immunodeficiency virus type 1
229 <400> SEQUENCE: 10
231 Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu
232 1 5 10 15
234 Leu Asp
237 <210> SEQ ID NO: 11
239 <211> LENGTH: 13
241 <212> TYPE: PRT
243 <213> ORGANISM: Human immunodeficiency virus type 1
247 <400> SEQUENCE: 11
249 Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe
250 1 5 10
252 <210> SEQ ID NO: 12
254 <211> LENGTH: 7
256 <212> TYPE: PRT
258 <213> ORGANISM: Human immunodeficiency virus type 1
262 <400> SEQUENCE: 12
264 Glu Leu Asp Lys Trp Ala Ser
265 1 5
267 <210> SEQ ID NO: 13
269 <211> LENGTH: 56
271 <212> TYPE: PRT
273 <213> ORGANISM: Human immunodeficiency virus type 1
277 <400> SEQUENCE: 13
279 Trp Asn Asn Met Thr Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr
280 1 5 10 15
282 Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu
283 20 25 30
285 Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp
286 35 40 45

```

## RAW SEQUENCE LISTING

DATE: 09/25/2003

PATENT APPLICATION: US/09/809,060

TIME: 13:22:45

Input Set : A:\Sequence Listing 1900\_0260001.txt

Output Set: N:\CRF4\09252003\I809060.raw

```

288 Asn Trp Phe Asn Ile Thr Asn Trp
289      50                      55
291 <210> SEQ ID NO: 14
293 <211> LENGTH: 55
295 <212> TYPE: PRT
297 <213> ORGANISM: Human immunodeficiency virus type 1
301 <400> SEQUENCE: 14
303 Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu
304 1      5                      10                      15
306 Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly
307      20                      25                      30
309 Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys
310      35                      40                      45
312 Asp Gln Gln Leu Leu Gly Ile
313      50                      55
315 <210> SEQ ID NO: 15
317 <211> LENGTH: 46
319 <212> TYPE: PRT
321 <213> ORGANISM: Human immunodeficiency virus type 1
325 <400> SEQUENCE: 15
327 Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile His
328 1      5                      10                      15
330 Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu
331      20                      25                      30
333 Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe
334      35                      40                      45
336 <210> SEQ ID NO: 16
338 <211> LENGTH: 34
340 <212> TYPE: PRT
342 <213> ORGANISM: Human immunodeficiency virus type 1
346 <400> SEQUENCE: 16
348 Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile His
349 1      5                      10                      15
351 Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu
352      20                      25                      30
354 Leu Leu
357 <210> SEQ ID NO: 17
359 <211> LENGTH: 46
361 <212> TYPE: PRT
363 <213> ORGANISM: Human immunodeficiency virus type 1
367 <400> SEQUENCE: 17
369 Trp Met Glu Trp Glu Arg Glu Ile Glu Asn Tyr Thr Gly Leu Ile Tyr
370 1      5                      10                      15
372 Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Asp
373      20                      25                      30
375 Leu Leu Ala Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe
376      35                      40                      45
378 <210> SEQ ID NO: 18
380 <211> LENGTH: 34

```

## RAW SEQUENCE LISTING

DATE: 09/25/2003

PATENT APPLICATION: US/09/809,060

TIME: 13:22:45

Input Set : A:\Sequence Listing 1900\_0260001.txt

Output Set: N:\CRF4\09252003\I809060.raw

```

382 <212> TYPE: PRT
384 <213> ORGANISM: Human immunodeficiency virus type 1
388 <400> SEQUENCE: 18
390 Trp Met Glu Trp Glu Arg Glu Ile Glu Asn Tyr Thr Gly Leu Ile Tyr
391 1 5 10 15
393 Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Asp
394 20 25 30
396 Leu Leu
399 <210> SEQ ID NO: 19
401 <211> LENGTH: 36
403 <212> TYPE: PRT
405 <213> ORGANISM: Human immunodeficiency virus type 1
409 <400> SEQUENCE: 19
411 Tyr Thr Gly Leu Ile Tyr Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln
412 1 5 10 15
414 Glu Lys Asn Glu Gln Asp Leu Leu Ala Leu Asp Lys Trp Ala Ser Leu
415 20 25 30
417 Trp Asn Trp Phe
418 35
420 <210> SEQ ID NO: 20
422 <211> LENGTH: 46
424 <212> TYPE: PRT
426 <213> ORGANISM: Human immunodeficiency virus type 1
430 <400> SEQUENCE: 20
432 Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Ser Glu Ile Tyr
433 1 5 10 15
435 Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu
436 20 25 30
438 Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe
439 35 40 45
441 <210> SEQ ID NO: 21
443 <211> LENGTH: 34
445 <212> TYPE: PRT
447 <213> ORGANISM: Human immunodeficiency virus type 1
451 <400> SEQUENCE: 21
453 Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Ser Glu Ile Tyr
454 1 5 10 15
456 Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu
457 20 25 30
459 Leu Leu
462 <210> SEQ ID NO: 22
464 <211> LENGTH: 36
466 <212> TYPE: PRT
468 <213> ORGANISM: Human immunodeficiency virus type 1
472 <400> SEQUENCE: 22
474 Tyr Thr Ser Glu Ile Tyr Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln
475 1 5 10 15
477 Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu
478 20 25 30

```

## RAW SEQUENCE LISTING ERROR SUMMARY

DATE: 09/25/2003

PATENT APPLICATION: US/09/809,060

TIME: 13:22:46

Input Set : A:\Sequence Listing 1900\_0260001.txt

Output Set: N:\CRF4\09252003\I809060.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:82; Xaa Pos. 25

Seq#:83; Xaa Pos. 25

Seq#:84; Xaa Pos. 18

## VERIFICATION SUMMARY

DATE: 09/25/2003

PATENT APPLICATION: US/09/809,060

TIME: 13:22:46

Input Set : A:\Sequence Listing 1900\_0260001.txt

Output Set: N:\CRF4\09252003\I809060.raw

L:17 M:270 C: Current Application Number differs, Replaced Current Application Number

L:1747 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:82 after pos.:16

L:1778 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:83 after pos.:16

L:1809 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:84 after pos.:16